

Atty. Docket No.: CA1469 (HAL 200)
PATENT APPLICATION

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Application No.: 09/996,308

REMARKS

Claims 1-22 are all the claims pending in the application. The Examiner rejected claim 21 under 35 U.S.C. 102(e) as being allegedly anticipated by Raab et al. (U.S. patent No. 5,751,967). The Examiner further rejected claims 1-20 and 22 under 35 U.S.C. 103(a) as being allegedly unpatentable over Raab et al. (U.S. patent No. 5,751,967) in view of Aziz et al. (U.S. patent No. 6,597,956). In response to these rejections, Applicant amends independent claims 1, 10, 15 and 18-22.

Applicant respectfully submits that Raab et al. and Aziz et al., taken singly or in combination, do not teach or suggest limitations recited in the above amended independent claims 1, 10, 15 and 18-22. Specifically, neither Raab et al. nor Aziz et al. teach a VLAN-aware storage device which itself contains functionality to: 1) map virtual volumes to different VLANs; and 2) control access to those virtual volumes in accordance with VLAN affiliation of the requesting network entity. In both Raab et al. and Aziz et al., all access control functions associated with VLAN configuration are performed exclusively by VLAN switch 504 (Aziz et al., Fig. 5) and network control engine NCE 210 (Raab et al., Fig. 2), and not by the network storage devices themselves. To the extent that Raab et al. and Aziz et al. disclose any network storage devices, these are "dumb" devices, which store no information on the VLAN configuration.

In more detail, Raab et al. discloses a system for automatically configuring a network device to support a virtual network. With reference to Fig. 4 of Raab et al., the system of Raab et al. includes a number of VLAN devices 410 and a network control engine NCE 200 executing a

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virtual auto-configuration daemon (VAC daemon) process 331 which is responsible for managing all the VLAN devices 410 in the switched network. The organization of the daemon process 331 is shown in detail in Fig. 4 of Raab et al. As can be clearly seen from Fig. 4, both the configuration and the enforcement of VLAN policies are the functions of the daemon process executing on the network control engine NCE 200 and not of the VLAN devices 410. All VLAN configuration information, including any device to VLAN mappings are managed by the policy configuration module 402 of the daemon process 331, see col. 8, ln. 36-67. Likewise, the enforcement of the VLAN policies as well as controlling access to various VLAN devices, including any storage devices, is conducted by the configuration enforcement module 405. Thus, in Raab et al. the VLAN devices 401, including any storage devices, do not have the functionality to manage any VLAN to storage mappings and cannot themselves control access to storage resources available on VLAN(s).

In the office action, the Examiner appears to read the term storage device recited in the claims on the network control engine NCE 210 shown in Fig. 2 of Raab et al, see col. 5, ln 20-23. Applicant respectfully submits that such an interpretation of Raab et al. is improper. The network control engine NCE 200 executes a Virtual Auto Configuration (VAC) daemon 331 for managing and enforcing various VLAN policies and does not perform storage functions for other network entities. On the other hand, amended independent claims 1, 10, 15 and 18-22 specify the storage device as being accessible over a network by other network entities. Thus, the network control engine NCE 200 is not the claimed storage device because its storage unit 207 is not accessible over a network by other network entities for storage operations.

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The second reference cited by the Examiner, Aziz et al., teaches a virtual server farm (VSF) consisting of computing and storage resources which can be dynamically and logically grouped into VSFs based on user demands. Allocation and control of the computing and storage elements of the VSF is performed by a control plane 508 connected to all computing, networking and storage elements, see Abstract, ln 1-7. As the Examiner would appreciate, in Aziz et al., all logical mappings of various computing and storage resources into VSFs as well as the VLAN management functionality are concentrated with VLAN Switch 504 (Fig. 5) as well as the control plane 508, see Abstract, ln. 1-7 and col. 7 ln. 26-29. Specifically, at col. 7 ln. 26-29 Aziz et al. teaches that the control plane 508 enforces the logical partitioning of all the computing and storage resources into multiple virtual server farms. Therefore, just like in Raab et al., the storage devices of Aziz et al. do not have the functionality for controlling access and managing mappings between VLANs and the corresponding virtual storage volumes.

The lack of the claimed functionality in storage devices of Aziz et al. is further evident from the fact that the disk drives DISK1 through DISK_m of Aziz et al. are SAN-type devices, which are directly connected to corresponding CPU1 through CPU_n via SAN ports, see Aziz et al., Fig. 2. These devices do not use VLAN connectivity and, therefore, are not able to manage VLAN to virtual volume mappings and are not able to enforce VLAN access policies.

On the other hand, the amended independent claims 1, 10, 15 and/or 18-22 generally recite a strikingly distinct storage system which itself contains functionality operable to: 1) map virtual volumes to different VLANs; and 2) control access to those virtual volumes in accordance with VLAN affiliation of the requesting network entity. Because the aforesaid features generally

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recited in the amended independent claims 1, 10, 15 and 18-22 are not taught or suggested in Raab et al. and/or Aziz et al., claims 1, 10, 15 and 18-22 are patentable over the cited art.

Applicant respectfully submits that all the aforementioned limitations recited in claims 1, 10, 15 and 18-22 may not be ignored and that all words in those claims must be considered in evaluating the patentability of the invention over the prior art. *Ochiai et al.*, 37 U.S.P.Q.2d 1127 (Fed. Cir. 1995). For this reason, amended independent claims 1, 10, 15 and 18-22 are patentable.

Applicant further notes that neither Raab et al. nor Aziz et al. teach or suggest the claimed virtual volume(s). The Examiner admits that Raab et al. does not contain such a teaching and attempts to rely on Aziz et al. to supply it. However, Aziz et al. also does not teach virtual volumes. In this regard, Applicant respectfully notes that the term "virtual volumes" appears nowhere in the reference and the SAN zones described in Aziz et al. are not the same as virtual volumes of the present invention. "[W]hen the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the reference." *In re Rijckaert*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (citing *In re Yates*, 663 F.2d 1054, 211 USPQ 1149, 1151 (CCPA 1981)). Therefore, claims 1, 10, 15, 18-20 and 22 are patentable for this additional reason as well.

Applicant further respectfully submits that Examiner's rejection of dependent claims 2-9, 11-14, 16 and 17 is rendered moot by the present amendment and that, in any event, these claims are patentable at least due to their dependence on the patentable independent claims 1, 10, and 15.

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Finally, the Examiner's reasoning for combining teachings of Raab et al. and Aziz et al. is flawed. In the Office Action, the Examiner states that these references should be combined because a storage controller and the alleged virtual volumes of Aziz et al. "would have provided secure communication in transmitting data over the Internet." Applicant respectfully submits that the Examiner's position is erroneous because the claims recite a storage system and not an Internet communication system and because neither of the cited references is directed to an Internet communication system. When a prior art reference requires a selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Something in the prior art as a whole must suggest the desirability, and, thus the obviousness, of making the combination. *Uniroyal, Inc. v. Rudken-Wyley Corp.*, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). In the Office Action, the Examiner has failed to identify the requisite reason suggested by the prior taken as a whole and, instead, impermissibly relies on hindsight gleaned from the invention itself. This is an additional reason why claims 1-20 and 22 are patentable.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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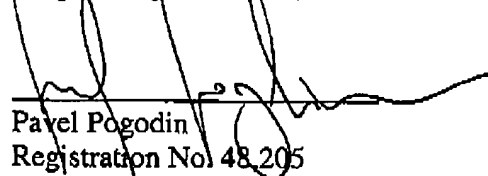
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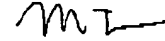
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Respectfully submitted,


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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this AMENDMENT UNDER 37 C.F.R. § 1.114(c) is being facsimile transmitted to the U.S. Patent and Trademark Office this 11th day of January, 2006.



Mariann Tam